Best Navigational Practices — study guide

Safe navigation is more than following the rules: it is planning the voyage properly, watching the instruments critically, and running the bridge as a team. This guide covers voyage planning, the electronic aids and the human factors.

Voyage planning

The IMO "Guidelines for Voyage Planning" divide a voyage into four phases: appraisal, planning, execution and monitoring.[1][2] A good voyage plan **must** comply with regulatory requirements and is a working reference for the Bridge Team. After the route is planned, check it for any prohibited or special areas and for objects or obstructions. Build in a thorough contingency plan, identifying emergency ports or sheltered emergency anchorages.[1]

Cross Track Distance (XTD) and positioning

Set the XTD corridor as large as safely possible, so you have as much safe water for manoeuvring as possible, keep the corridor free of any dangers, and set it up individually for each leg. GNSS such as GPS should be cross-checked with other positioning methods often enough to avoid an incident.

Alerts, chart checks and equipment

Bridge alerts have priorities: **Alarms** are high-priority alerts requiring immediate attention and action; **Warnings** advise about conditions that can become a danger if left unchecked and require immediate attention, but not necessarily immediate action; **Cautions** are the lowest priority, informing without distracting from other duties. **Alarm fatigue** results from an overabundance of alerts, especially audible alarms. Using ECDIS to check the chart area ahead gives a real-time graphical position and can detect dangers in a defined area based on the set safety contour.

Under-keel clearance, chart accuracy and squat

The **Under Keel Clearance Policy** declares how much water is needed underneath the keel at any given time. **Chart accuracy** describes how thorough the hydrographic measurements were and how precise the chart's values are. The **hydrodynamic squat effect** is caused by the vessel's speed and results in lower water depth under the ship than for a stationary object of the same draught. Safety calculations can be influenced by static draught, draught increase from rolling or pitching, chart accuracy and squat.

Watchkeeping and manning

The **Bridge Navigational Watch Alarm System (BNWAS)** ensures that if the Officer of the Watch becomes incapacitated, the vessel does not remain without command.[3] Before a voyage the vessel must be adequately manned; if extraordinary

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circumstances leave it with insufficient, inexperienced or exhausted personnel, it is the Master's responsibility to find an adequate solution with the owner or charterer. The **Officer of the Watch** has overall responsibility for collision avoidance on the bridge team.

Watch handover

Watch handover adds risk even between skilled teams. As a minimum it should cover: the vessel's position and the characteristics of the area (especially water depth and obstructions); the status of the vessel as regards draught, heel, trim and other influences on under-keel clearance; any standing orders or special instructions; and the current traffic, weather, visibility and tidal situation.

Safe speed and good seamanship

When deciding a safe speed, consider visibility and light conditions (including background light at night), available water depth versus draught, traffic density (including small craft and fishing boats), weather such as wind, sea and current, and the vessel's own manoeuvring characteristics — especially stopping distance and turning ability. The COLREGs also require good seamanship beyond the visible actions: granting safe passage where required (for example to a vessel restricted by its draught) and passing aft of another vessel when changing course or speed in a crossing situation. Visual identification still matters: a white stern light means the vessel is moving away from you (seen from astern).

Human factors

Over-reliance on electronic tools has grown with technical advances, so balance all available means (electronic tools and visual look-out) against each other. Routine use of equipment, such as for route planning, gives the operator insight into how settings affect the chart system, and sound knowledge of the equipment's capabilities and limitations prevents over-reliance. Effective, clear communication of the shared goal is essential to bridge resource management, and routine situations help build the experience and coordination that improve teamwork.

Key facts to remember

- Voyage planning phases: appraisal, planning, execution, monitoring (IMO Guidelines; plan must be regulatory-compliant).
- XTD corridor: as large as safely possible, danger-free, set per leg.
- Alerts: Alarm > Warning > Caution; too many alerts cause alarm fatigue.
- UKC policy = required water under the keel; squat lowers under-keel depth with speed.
- BNWAS keeps the vessel commanded if the OOW is incapacitated.
- Safe speed factors: visibility, depth vs draught, traffic, weather, manoeuvring characteristics.

- Good seamanship: grant safe passage, pass aft in a crossing; OOW owns collision avoidance.

Sources

1. IMO Resolution A.893(21) — Guidelines for Voyage Planning.
2. SOLAS Chapter V, Regulation 34 — Safe navigation and avoidance of dangerous situations (voyage planning).
3. SOLAS Chapter V, Regulation 19 — Carriage requirements for shipborne navigational systems and equipment (including BNWAS).